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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,647	09/25/2003	Nancy H. Chen	02-1-831	6793

7590 11/22/2004
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EXAMINER

TRAN, THUY V

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/670,647

Applicant(s)

CHEN ET AL.

Examiner

Thuy V. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13 and 16-20 is/are rejected.
- 7) ☒ Claim(s) 12, 14, 15 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/25/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

This is a response to the Applicants' filing on September 25th, 2003. In virtue of this filing, claims 1-21 are currently presented in the instant application.

Inventorship

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 09/25/2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings Objections

3. The drawings are objected to because of the following informalities in all the figures:

- Drawing lines: not uniform; and
- Reference numerals/characters: not legible.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the

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appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections/ Minor Informalities

4. Claims 1 and 13-14 are objected to because of the following informalities:

Claim 1, line 2, --providing a lamp, and-- should be inserted after "of" (second occurrence);

Claim 13, line 2, --a lamp, -- should be inserted between "comprising" and "a"; and

Claim 14, line 3, --the-- should be inserted between "combining" and "signals".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 8-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 8, the term "about" in line 3 renders the claim indefinite since it is not clear how small/large below or above 1 kHz wide as it indicates. For a proper

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characterization of the claimed invention, providing a range instead of “about” is suggested.

Clarification is required.

Claim 9 is also rejected under 35 U.S.C. 112, 2nd paragraph, since it is dependent on claim 8.

With respect to claim 10, the term “about” in line 2 renders the claim indefinite since it is not clear how small/large below or above 15 kHz wide as it indicates. For a proper characterization of the claimed invention, providing a range instead of “about” is suggested. Clarification is required.

Claim 11 is also rejected under 35 U.S.C. 112, 2nd paragraph, since it is dependent on claim 10.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-7, 13, and 16-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kramer (U.S. Patent No. 6,40,100).

With respect to claim 1, Kramer discloses, in Figs. 1 and 2a-b, a discharge lamp system and a corresponding method of operating the system in which vertical segregation of vapor phase species is reduced; the method comprising the steps of modulating lamp power (via [20, 16]; see Fig. 1; col. 4, lines 37-48) with an arc-straightening frequency (provided by the control of the control module [20] over the signal generator [16] by which the frequency of the amplitude

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modulated signal provided by the signal generator [16] is increased/decreased in defined incremental steps; see col. 4, lines 42-44) and with a frequency that excites a combination radial plus longitudinal acoustic mode of a lamp [14] (see Fig. 1; col. 2, line 65 – col. 3, line 6; col. 4, lines 14-45).

With respect to claim 2, Kramer discloses that the arc-straightening frequency is provided in spaced apart time periods and the excitation of the combination radial plus longitudinal acoustic mode occurs between the arc-straightening frequency time periods (see col. 2, line 65 – col. 3, line 20).

With respect to claim 3, Kramer discloses that the excitation of the combination radial plus longitudinal acoustic mode is provided at the same time as the arc-straightening frequency (see col. 3, lines 7-20).

With respect to claim 4, Kramer discloses that the combination radial plus longitudinal mode is a combination of a first radial mode (see col. 3, lines 1-6; col. 4, lines 21-30) and an n^{th} longitudinal mode (see col. 3, lines 1-6).

With respect to claim 5, Kramer discloses that n is 2 (which is “one of 2, 4, and 6” as claimed; see col. 4, lines 53-55).

With respect to claim 6, Kramer discloses that the combination radial plus longitudinal mode is excited with a single frequency (which is f_y ; see col. 5, line 5).

With respect to claim 7, Kramer discloses that the combination radial plus longitudinal mode is excited with a swept power frequency range (see col. 5, line 12).

With respect to claim 13, Kramer discloses, in Figs. 1 and 2a-b, a discharge lamp system with reduced vertical segregation of vapor phase species comprising a first generator [20, 16]

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that modulates lamp power (see Fig. 1; col. 4, lines 37-48) with an arc-straightening frequency (provided by the control of the control module [20] over the signal generator [16] by which the frequency of the amplitude modulated signal provided by the signal generator [16] is increased/decreased in defined incremental steps; see col. 4, lines 42-44) and a second generator [12] that modulates lamp power at a combination radial plus longitudinal acoustic mode of a lamp [14] (see Fig. 1; col. 2, line 65 – col. 3, line 6; col. 4, lines 14-45).

With respect to claim 16, Kramer discloses, in Figs. 1 and 2a-b, that the second generator [12] provides a signal that modulates lamp power at a combination of a first radial mode and an n^{th} longitudinal mode (see col. 3, lines 1-6; col. 4, lines 21-30).

With respect to claim 17, Kramer discloses that n is 2 (which is “one of 2, 4, and 6” as claimed; see col. 4, lines 53-55).

With respect to claim 18, Kramer discloses that the second generator [12] outputs a single frequency (see col. 4, line 15).

With respect to claim 19, Kramer discloses that the second generator [12] outputs a swept frequency range (see col. 4, lines 15-16).

With respect to claim 20, Kramer discloses that the swept frequency range excites a combination of a first radial mode and an n^{th} longitudinal mode (see col. 3, lines 1-5).

Allowable Subject Matter

9. Claims 12, 14-15, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

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Prior art fails to disclose or fairly suggest:

- A method of operating a discharge lamp system in which vertical segregation of vapor phase species is reduced, wherein each time period of the arc-straightening frequency is 2 to 16 times longer than a subsequent modulation at the combination radial plus longitudinal mode of the lamp, in combination with the remaining claimed limitations as called for in claim 12;
- A discharge lamp system with reduced vertical segregation of vapor phase species further comprising a circuit with a first multiplier providing a signal from said first generator, a second multiplier providing a signal from said second generator, an adder for combining the signals from said first and second multipliers, and a controller for providing a non-zero multiple to only one of said first and second multipliers at a time, in combination with the remaining claimed limitations as called for in claim 14 (claim 15 would be allowable since it is dependent on claim 14); and
- A discharge lamp system with reduced vertical segregation of vapor phase species, wherein said first generator provides a range of frequencies that includes a second azimuthal mode of the lamp, in combination with the remaining claimed limitations as called for in claim 21.

Remarks on claims 8-9

11. Claims 8-9 and 10-11 are not being provided with either rejection(s) over art or with indicated allowable subject matter since they are defective.

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Citation of relevant prior art

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Kramer (U.S. Patent No. 6,788,007) discloses a method and device for arc straightening in an HID lamp.

Prior art Duong et al. (U.S. Patent No. 6,522,089) discloses an electronic ballast and method for arc straightening.

Prior art Kramer (U.S. Patent No. 6,483,259) discloses a method and apparatus for determining power frequencies that cause arc instabilities in discharge lamps.

Prior art Kominami et al. (U.S. Patent No. 6,147,461) discloses an operating apparatus for operating a discharge lamp.

Prior art Miyazaki et al. (U.S. Patent No. 5,880,561) discloses a method and device for reducing discharge arc curvature.

Prior art Moskowitz et al. (U.S. Patent No. 5,684,367) discloses a method and device for control of arc instabilities in discharge lamps.

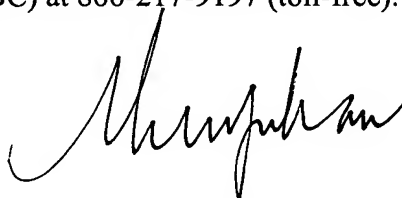
Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuy V. Tran whose telephone number is (571) 272-1828. The examiner can normally be reached on M-F (8:00 AM -5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thuy V. Tran', is positioned above the printed name.

Thuy V. Tran
Primary Examiner
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11/16/2004